1. A smart culture vessel for holding a sample to be tested in a culture medium comprising:

a bio-sensor, in the vessel in the culture medium with the sample having a coating for attracting at least one pathogen expected in the sample; and

a detection circuit responsive to the bio-sensor for indicating the presence of a pathogen on the bio-sensor.

2. The smart culture vessel of claim 1 in which the bio-sensor includes an array of bio-sensor elements.

3. The smart culture vessel of claim 2 in which each bio-sensor element has a different coating for attracting pathogens.

4. The smart culture vessel of claim 1 in which the detection circuit drives the bio-sensor over a range of predetermined frequencies and detects a shift in frequency over time due to the attached pathogen.

5. The smart culture vessel of claim 1 in which the detection circuit is external to the vessel.

6. The smart culture vessel of claim 4 in which the range of predetermined frequencies is near the resonant frequency of the bio-sensor.

7. The smart culture vessel of claim 1 in which the detection circuit drives the bio-sensor at a predetermined frequency and detects a shift in frequency due to the attached pathogen.

8. The smart culture vessel of claim 7 in which the predetermined frequency is the resonant frequency of the bio-sensor.

9. The smart culture vessel of claim 6 in which the shift in frequency is a shift in the resonant frequency of the bio-sensor.

10. The smart culture vessel of claim 8 in which the shift in frequency is a shift in the resonant frequency of the bio-sensor.

11. The smart culture vessel of claim 1 in which the detection circuit continuously drives the bio-sensor over a range of predetermined frequencies and detects a shift in frequency over time due to the attached pathogen.

12. The smart culture vessel of claim 1 in which the detection circuit drives the bio-sensor over a range of predetermined frequencies and instantaneously detects a shift in resonant frequency due to the attached pathogen.

13. The smart culture vessel of claim 1 in which the detection circuit continuously drives the bio-sensor at its resonant frequency and detects a shift in frequency due to the attached pathogen.

14. The smart culture vessel of claim 1 in which the detection circuit drives the bio-sensor at its resonant frequency and instantaneously detects a shift in frequency due to the attached pathogen.